We claims:

1.

A self-relieving choke starting system of a carburetor for a combustion engine comprising:

a body of the carburetor;

an elongated fuel-and-air mixing passage defined by the body;

a choke valve having a rotating shaft extending laterally through the fuel-and-air mixing passage and through the body, and a latch projecting radially outward from the choke shaft;

wherein the choke shaft rotates between an open position, an intermediate position, and a closed position;

a throttle valve having a rotating shaft extending laterally through the fuel-and-air mixing passage and through the body and a follower arm projecting radially outward from the throttle shaft;

wherein the throttle shaft rotates between a full throttle state, a fast idle state and a slow idle state;

a throttle spring operably connected to the throttle valve and -biasing the throttle valve toward the slow idle state;

the latch carrying a cam end;

the follower arm having a first indent and a second indent disposed radially inward from the first indent with respect to the throttle shaft; and

wherein the cam end is located in the first indent when the choke valve is in the intermediate position and the throttle valve is in the fast idle state, and wherein the cam end is located in the second indent when the choke valve is in the closed position and the throttle valve is in the fast idle state.

2.

The self-relieving choke starting system set forth in Claim 1 comprising a coiled choke spring engaged to the body at one end and engaged to the choke valve at an opposite end for biasing the choke valve toward the open position;

3.

The self-relieving choke starting system set forth in Claim 2 wherein the throttle spring biases the throttle shaft in a counter-clockwise direction and the choke spring biases the choke shaft in a clockwise direction.

4.

The self-relieving choke starting system set forth in Claim 1 comprising:

the cam end of the latch having a leading cam surface and a trailing stop surface;

the follower arm having a first tab projecting circumferentially outward with respect to the throttle shaft, a second tab spaced radially inward from and co-extending with the first tab, wherein the first indent is disposed radially between the first and second tabs and the second indent is disposed radially inward from the second tab; and

wherein the trailing stop surface engages the first tab when the cam end is in the first indent and wherein the trailing stop surface engages the second tab when the cam end is in the second indent.

5.

The self-relieving choke starting system set forth in Claim 1 comprising:

a convex cam surface carried by the cam end of the latch;

the follower arm having a concave first face defining the first indent, and a concave second face defining the second indent; and

wherein the first and second faces generally oppose the leading cam surface.

6.

The self-relieving choke starting system set forth in Claim 1 wherein the choke and throttle valves are of a butterfly-type each having a plate disposed pivotally in the fuel-and-air mixing passage and being engaged to the respective shafts, and wherein the choke and throttle shafts rotate to pivot the choke and throttle plates.

7.

The self-relieving choke starting system set forth in Claim 2 wherein the opposite ends of the choke and throttle springs are engaged to the respective latch and follower arm.

8.

A self-relieving choke starting system of a carburetor for a combustion engine comprising:

a body of the carburetor;

an elongated fuel-and-air mixing passage defined by the body;

a butterfly-type choke valve having a choke plate disposed pivotally in the fuel-and-air mixing passage, a choke shaft connected to the choke plate and extending laterally through the fuel-and-air mixing passage and through the body, and a latch projecting radially outward from a distal end of the choke shaft;

wherein the choke shaft rotates to pivot the choke plate between an open position and a closed position;

a choke spring operably connected to the choke valve and biasing the choke valve and toward the open position;

a butterfly-type throttle valve having a throttle plate disposed pivotally in the fuel-and-air mixing passage, a throttle shaft connected to the throttle plate and extending laterally through the fuel-and-air mixing passage and through the body, and a follower arm projecting radially outward from a distal end of the throttle shaft;

wherein the throttle shaft rotates to pivot the throttle plate between a full throttle state, a fast idle state and a slow idle state;

a throttle spring operably connected to the throttle valve and biasing the throttle valve toward the slow idle state;

the latch having a cam end;

the follower arm having a first indent opening generally toward the cam end; and

wherein the cam end is received in the first indent when the choke valve is not in the open position and the throttle valve is in the fast idle state and wherein rotation of the throttle shaft against the biasing force of the throttle spring and toward the full throttle state releases the latch from the follower arm and the biasing force of the choke spring returns the choke valve to the open position.

9.

A self-relieving choke starting system of a carburetor for a combustion engine comprising:

a body of the carburetor;

an elongated fuel-and-air mixing passage defined by the body;

a choke valve having a choke shaft rotatably carried by to the body and extending laterally through the fuel-and-air mixing passage, an elongated latch projecting radially outward from a distal end of the choke shaft and disposed externally to the body, an open position for normal operation of the engine, a closed position for initial starting of the engine when cold, and at least one intermediate position for successive attempts at starting a cold engine;

a throttle valve having a throttle shaft rotatably carried by the body, and extending laterally through the fuel-and-air mixing passage, an elongated follower arm disposed externally to the body and projecting radially outward from the throttle shaft, a full throttle state for high speed running of the engine, a fast idle state for starting of the engine when cold, and a slow idle state for normal idling of the engine;

a throttle spring operably connected to the throttle valve and biasing the throttle valve toward the slow idle state;

the latch having a cam contact and a radial length measured between a rotational axis of the choke shaft and the cam contact;

the follower arm having a plurality of contact faces spaced radially from one-another with respect to the throttle shaft;

wherein each face of the plurality of contact faces is spaced generally at the radial length from the rotational axis of the choke shaft when the throttle valve is in the fast idle state; and

wherein the cam contact is biased against any one of the plurality of contact faces when the choke valve is not in the open position and the throttle valve is in the fast idle state.

10.

The self-relieving choke starting system set forth in Claim 9 comprising:

a coiled choke spring engaged to the body at one end and engaged to the latch at an opposite end for biasing the choke valve in a counter-clockwise direction and toward the open position; and

wherein clockwise rotation of the throttle shaft against the biasing force of the throttle spring and toward the full throttle state releases the latch from the follower arm and the biasing force of the choke spring automatically returns the choke valve in the counter-clockwise direction to the open position.

11.

A method of starting a cold combustion engine comprising the steps of:

manually moving a choke valve in a closing direction from an open position against a biasing force of a choke spring;

contacting a latch of the choke valve to a follower arm of a throttle valve;

automatically moving the throttle valve in an opening direction from a slow idle state against the biasing force of a throttle spring;

engaging the latch with a second indent carried by the follower arm when the choke valve has manually moved to a closed position and the throttle valve has automatically moved to a fast idle position;

failing to start the engine on a first attempt;

manually moving the choke valve in an opening direction from the closed position;

engaging the latch with a first indent carried by the follower arm when the choke valve is manually moved to a half choke position and the throttle valve is maintained in the fast idle position; and

attempting a successive start of the engine.

12.

The method of starting a cold engine set forth in Claim 11 comprising the additional steps of:

starting the engine upon a successive attempt;

manually moving the throttle valve against the biasing force of the throttle spring in the opening direction and from the fast idle position; and

automatically returning the choke valve to the open position via the biasing force of the choke spring.